WHAT IS CLAIMED IS

1. An electric motor comprising a rotor equipped with magnets and a stator having a plurality of slots, wherein:

said rotor or said stator is divided into 4 or 4n (n indicates an integer, 4 forms one group) pieces in an axial direction, and an axial length and an electrical angle of said each piece, assuming an axial length of said one group of said rotor core or said stator core as 2L, said axial direction as a X-axis, an axial center as x=0, and electromagnetic exciting force in a radial direction as F(x), on the basis of following three relational formulas:

$$\int_{-L}^{L} F(x)dx = 0$$

$$\int_{-L}^{L} xF(x)dx = 0$$

$$F(-x) = -F(x)$$

are set according to a relationship between an equivalent axial length and an equivalent position shifted between said pieces in a circumferential direction and are arranged in a setting order, and

said each piece of said one group of said four pieces, as said equivalent axial length, is set to any axial length within a range from 0.19L, 0.81L, 0.81L, and 0.19L to 1/2L, 1/2L, 1/2, and 1/2L, and effective pole opening angles are arranged in the circumferential direction as a phase difference of electrical angles of said neighboring pieces equivalent to 0, π, 0, and π.

2. An electric motor comprising a rotor equipped with magnets and a stator having a plurality of slots, wherein:

said rotor or said stator is divided into 4 or 4n (n indicates an integer, 4 forms one group) pieces in an axial direction, and an axial length and an electrical angle of said each piece, assuming an axial length of said one group of said rotor core or said stator core as 2L, said axial direction as a X-axis , an axial center as x=0, and electromagnetic exciting force in a radial direction as F(x), on the basis of following three relational formulas:

$$\int_{-L}^{L} F(x)dx = 0$$

$$\int_{-L}^{L} xF(x)dx = 0$$

$$F(-x) = -F(x)$$

are set according to a relationship between an equivalent axial length and an equivalent position shifted between said pieces in a circumferential direction and are arranged in a setting order, and

said each piece of said one group of said four pieces, as said equivalent axial length, is set to any axial length within a range from 0.19L, 0.81L, 0.81L, and 0.19L to 0.39L, 0.61L, 0.61L, and 0.39L, and effective pole opening angles are arranged in a circumferential direction as phase difference of electrical angles of said neighboring pieces equivalent to 0, π, 0, and π.

3. An electric motor comprising a rotor equipped

with magnets and a stator having a plurality of slots, wherein:

said rotor or said stator is divided into 4 or 4n (n indicates an integer, 4 forms one group) pieces in an axial direction, and an axial length and an electrical angle of said each piece, assuming an axial length of said one group of said rotor core or said stator core as 2L, said axial direction as a K-axis, an axial center as x=0, and electromagnetic exciting force in a radial direction as F(x), on the basis of following three relational formulas:

$$\int_{-L}^{L} F(x)dx = 0$$

$$\int_{-L}^{L} xF(x)dx = 0$$

$$F(-x) = -F(x)$$

are set according to a relationship between an equivalent axial length and an equivalent position shifted between said pieces in a circumferential direction and are arranged in a setting order, and

said each piece of said one group of said four pieces, as said equivalent axial length, on the basis of 1:2:2:1, is set to any axial length within a range of ±5% of a total axial length of said one group of said four pieces, and effective pole opening angles are arranged in the circumferential direction as a phase difference of electrical angles of said neighboring pieces equivalent to 0, π, 0, and π.

4. An electric motor comprising a rotor equipped

with magnets and a stator having a plurality of slots, wherein:

said rotor or said stator is divided into 6 or 6n (n indicates an integer, 6 forms one group) pieces in an axial direction, and an axial length and an electrical angle of said each piece, assuming an axial length of said one group of said rotor core or said stator core as 2L, said axial direction as a X-axis , an axial center as x=0, and electromagnetic exciting force in a radial direction as F(x), on the basis of following three relational formulas:

$$\int_{-L}^{L} F(x)dx = 0$$

$$\int_{-L}^{L} xF(x)dx = 0$$

$$F(-x) = -F(x)$$

are set according to a relationship between an equivalent axial axial length and an equivalent position shifted between said pieces in a circumferential direction and are arranged in a setting order, and

said each piece of said one group of said six pieces, as said equivalent length, on the basis of 0.25L, 0.50L, 0.25L, 0.25L, 0.50L, and 0.25L, is set to any axial length within a range of ±5% of a total axial length of said one group of said six pieces,

or within a range from 0.25L, 0.50L, 0.25L, 0.25L, 0.50L, and 0.25L to 1/3L, 1/3L, 1/3L, 1/3L, 1/3L, and 1/3L, and effective pole opening angles are arranged in the circumferential direction as a phase difference of

electrical angles of said neighboring pieces equivalent to 0, π, 0, and π.

5. An electric motor comprising a rotor equipped with magnets and a stator having a plurality of slots, wherein:

said rotor or said stator is divided into 6 or 6n (n indicates an integer, 6 forms one group) pieces in an axial direction, and a longitudinal length and an electrical angle of said each piece, assuming an axial length of said one group of said rotor core or said stator core as 2L, said axial direction as a X-axis, an axial center as x=0, and electromagnetic exciting force in a radial direction as F(x), on the basis of following three relational formulas:

$$\int_{-L}^{L} F(x)dx = 0$$

$$\int_{-L}^{L} xF(x)dx = 0$$

$$F(-x) = -F(x)$$

are set according to a relationship between an equivalent axial length and an equivalent position shifted between said pieces in a circumferential direction and are arranged in a setting order, and

said each piece of said one group of said six pieces, as said equivalent length, on the basis of 0.25L, 0.50L, 0.25L, 0.25L, 0.50L, and 0.25L, is set to any axial length within a range of ±5% of a total axial length of said one group of said six pieces, and effective pole

opening angles are arranged in the circumferential direction as a phase difference of electrical angles of said neighboring pieces equivalent to 0, π, 0, and π.

6. An electric motor comprising a rotor equipped with magnets and a stator having a plurality of slots, wherein:

said rotor or said stator is divided into even pieces such as 4 pieces or more in an axial direction, and an axial length and an electrical angle of said each piece, assuming an axial length of said rotor core or said stator core as 2L, said axial direction as a X-axis, an axial center as x=0, and electromagnetic exciting force in a radial direction as F(x), on the basis of following three relational formulas:

$$\int_{-L}^{L} F(x)dx = 0$$

$$\int_{-L}^{L} xF(x)dx = 0$$

$$F(-x) = -F(x)$$

are set according to a relationship between an equivalent axial length and an equivalent position shifted between said pieces in a circumferential direction and are arranged in a setting order.

7. An electric motor comprising a rotor equipped with magnets and a stator having a plurality of slots, wherein:

said rotor or said stator is divided into 4 or 4n (n indicates an integer, 4 forms one group) pieces in an axial direction, and electromagnetic exciting force in a

radial direction having a practically same amplitude is applied to said each piece, and

assuming an axial length of said one group of said rotor or said stator as 2L, said each piece of said one group of said four pieces, as an equivalent axial length, is set to any axial length within a range from 0.19L, 0.81L, 0.19L, 0.81L to 0.39L, 0.61L, 0.61L, and 0.39L, and effective pole opening angles are arranged in the circumferential direction as a phase difference of electrical angles of said neighboring pieces equivalent to 0, π, 0, and π.

8. An electric motor composed of a rotor equipped with magnets and a stator having a plurality of slots, wherein:

said rotor or said stator is divided into 4 or 4n (n indicates an integer, 4 forms one group) pieces in an axial direction, and electromagnetic exciting force having a practically same amplitude in a radial direction is applied to said each piece, and

said each piece of said one group of said four pieces, as an equivalent axial length, on the basis of 1:2:2:1, is set to any axial length within a range of ±5% of a total axial length of said one group of said four pieces, and effective pole opening angles are arranged in the circumferential direction as a phase difference of electrical angles of said neighboring pieces equivalent to 0, π, 0, and π.

9. An electric motor comprising a rotor equipped

with magnets and a stator having a plurality of slots, wherein:

said rotor or said stator is divided into 6 or 6n (n indicates an integer, 6 forms one group) pieces in an axial direction, and electromagnetic exciting force in a radial direction having a practically same amplitude is applied to said each piece, and

assuming an axial length of said one group of said rotor or said stator as 2L, said each piece of said one group of said six pieces, as said equivalent axial length, on the basis of 0.25L, 0.50L, 0.25L, 0.25L, 0.50L, and 0.25L, is set to any axial length within a range of ±5% of a total axial length of said one group of said six pieces, and effective pole opening angles are arranged in the circumferential direction as a phase difference of electrical angles of said neighboring pieces equivalent to 0, π, 0, and π.

10. An electric motor according to any of Claims 1 to 9, wherein said effective pole opening angles of said each piece are set to an angle shifted by one half of said slot between said pieces.

11. An electric motor according to any of Claims 1 to 10, wherein when said electric motor is a linear motor, said rotor and said stator are in a shape developed on a plane.